



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,512	07/28/2003	Masuhiko Natsuhara	39.018-AG	1511

29453 7590 11/30/2005

JUDGE PATENT FIRM
RIVIERE SHUKUGAWA 3RD FL.
3-1 WAKAMATSU-CHO
NISHINOMIYA-SHI, HYOGO, 662-0035
JAPAN

EXAMINER

KACKAR, RAM N

ART UNIT	PAPER NUMBER
----------	--------------

1763

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/604,512

Applicant(s)

NATSUHARA ET AL.

Examiner

Ram N. Kackar

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/19/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Niori et al (US 6197246).**

Niori et al disclose a wafer holder for a semiconductor manufacturing equipment (Fig 7) and disclose an RF electrode (30) of round shape built in the wafer holder. The electrode circuit diameter is disclosed slightly greater than the wafer (Fig 7). The distance between the electrode and the wafer-carrying surface (Fig 4-16 *called wave permeation layer*) being 1mm maximum (Col 15 lines 51-54). The electrode is disclosed to be at least 200mm (Col 19 lines 7-11) and the diameter of the holder 205 mm (Col 19 lines 32-36). Therefore the distance of electrode to the periphery of the holder (2.5 mm) is disclosed greater than the distance between the electrode and the wafer-carrying surface.

Regarding the diameter of electrode being more than the diameter of the wafer it is more than the diameter of a standard wafer of 150mm.

Secondly for a situation where a 200mm wafer is used it held that where the only difference between the prior art and the claims is a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device is not patentably distinct from the prior art device. In Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984). In this instance it is clear that electrode of same diameter or more behave exactly same way (See specification Table 1 for a 300mm substrate the diameter of 300 or more performs same).

3. Claims 1-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Divakar et al (US 20020185487).

Divakar et al disclose a wafer holder for a semiconductor manufacturing equipment (Fig 1 and Para 02) and disclose an RF electrode (15) of round shape built in the wafer holder. The electrode circuit diameter is disclosed greater than the wafer (Fig 1). The distance between the electrode and the wafer-carrying surface appears to be smaller than the distance of electrode to the periphery of the holder.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1- 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Niori et al (US 6197246) in view of Shamouilian et al (US 20010003298).

Niori et al disclose a wafer holder for a semiconductor manufacturing equipment (Fig 7) and disclose an RF electrode (30) of round shape built in the wafer holder. The electrode circuit diameter is disclosed slightly greater than the wafer (Fig 7). The distance between the electrode and the wafer-carrying surface (Fig 4-16 *called wave permeation layer*) being 1mm maximum (Col 15 lines 51-54). The electrode is disclosed to be 200mm (Col 19 lines 7-11) and the diameter of the holder 205 mm (Col 19 lines 32-36). Therefore the distance of electrode to the periphery of the holder (2.5 mm) is disclosed greater.

Regarding the size of electrode as it is disclosed to be 200mm it is same as that of a standard wafer of 200mm. However if the size of the wafer is 300mm Shamouilian et al teach that the electrode size could be $70,000 \text{ mm}^2$. Further Shamouilian et al recognize the relationship of electrode size with respect to wafer size for uniformly coupling RF energy and teach that it should be sufficiently large. Therefore electrode size is recognized as a result effective parameter in the context of MPEP 2144.05 II B and is therefore obvious to optimize.

Therefore it would have been obvious for one of ordinary skill in the arts at the time of invention to have an electrode of sufficiently large size in order to uniformly couple RF energy to the processing gas.

Response to Arguments

Applicant's arguments filed 10/5/2005 have been fully considered but they are not persuasive.

Art Unit: 1763

Rejection depending upon 35 USC 112 are removed in view of applicants argument that substrate diameter is one of standard 150, 200 or 300mm.

Applicant argues that amended claim 1 now distinguishes over the prior art of Niori et al. In response it is noted that the diameter of electrode is more than the diameter of a standard wafer of 150mm.

Secondly as discussed above, for a situation where a 200mm wafer is used it held that where the only difference between the prior art and the claims is a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device is not patentably distinct from the prior art device. In Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984). In this instance it is clear that electrode of same diameter or more behave exactly same way.

Thirdly as per the teaching of Shamouilian et al the relation ship of electrode size with respect to wafer size is recognized to affect uniformly of coupling RF energy and therefore it needs to be sufficiently large. Therefore according to MPEP 2144.05 II B it is therefore obvious to optimize.

Applicant's arguments regarding Divakar are not persuasive since it is abundantly clear that the electrode is larger than wafer. Applicant's argument that one of ordinary skill in the art would recognize such an arrangement as improbable and unrealistic is without any basis.

Applicant further argues that Niori et al and Divakar et al show no recognition of the problem faced by the applicant.

Art Unit: 1763

This argument is not persuasive since structural limitations disclosed in the prior art read on the claims properly.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N. Kackar whose telephone number is 571 272 1436. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571 272 1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1763

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ram Kackar
Examiner AU 1763